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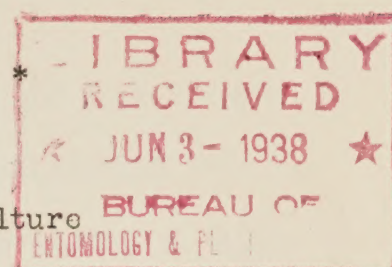
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GEORGIA COASTAL PLAIN EXPERIMENT STATION, TIFTON, GEORGIA.

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CONTROL OF THE BOLL WEEVIL ON SEA ISLAND COTTON *

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In the average year it is necessary to control the cotton boll weevil if a profitable crop of Sea Island cotton is to be raised. Just how best to accomplish this is a question of great importance to the grower.

Because it is subject to weevil injury for a much longer period than are most Upland cotton varieties, it is necessary to give Sea Island cotton adequate protection practically from the first formation of squares until the bolls begin to open. By far the heaviest damage to the crop is done late in July and throughout August, after most Upland cotton has opened in southern Georgia.

Much of the poisoning for weevils on Upland cotton in this region has been presquare by/moppings or sprayings, or, by a few farmers, by dusting. On the whole these treatments seem to have given considerable satisfaction for this type of cotton. It is impossible, however, to kill all weevils in the field by these methods, and with the mid-summer migration of weevils, about August 1, heavy late infestations of fields reasonably weevil-free may result. A considerable amount of late poisoning is therefore necessary on Sea Island cotton in any season when weevils are normally numerous, or when wet weather makes conditions favorable for their increase early in the season.

Two methods, dusting and spraying with calcium arsenate, have been used experimentally with some degree of success for controlling this important late infestation. These methods are equally useful for controlling early weevils.

* Cooperative investigations in Cotton Insect Investigations between the Georgia Coastal Plain Experiment Station and the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

The preferable of these two methods was used on a field scale last season (1937) by the Georgia Coastal Plain Experiment Station, in cooperation with the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture, in Echols County, Georgia. The method consists of an extension of the usually recommended dusting with calcium arsenate, applied whenever the field shows weevils present in sufficient numbers to attack from 8 to 10 per cent of the farming squares.

The method of determining the degree of attack usually used is as follows: At each of five different points well distributed over the field (for instance, some 50 to 60 feet in from each corner and in the center of the field) examine enough plants to furnish 100 squares. Every square upon the plant sufficiently large to be attacked by weevils should be examined until the total number of 100 squares have been examined. Pull off each weevil-punctured square. Continue the examination in the same way at each of the other four selected points. Then count the total number of weevil-injured squares pulled off and divide by 5. The result will be the percentage of injured squares.

For dusting, ordinary calcium arsenate is recommended at the rate of from 4 to 6 pounds per acre. If this is carefully applied by any good dusting gun it will be sufficient. More is a waste of dust, and upon light, sandy soils may ultimately be followed by some soil injury. This dust should be applied while the plants are wet with dew, either upon a still morning or on a quiet evening. There should be no more wind than will produce a very slight drifting of the dust. Two applications, 4 or 5 days apart, are recommended, and the cotton should be redusted in case rain falls within 24 hours after the application.

Approximately 5 days after the second dusting, recheck the field for infestation. If the proportion of punctured squares is still above 10 per cent, continue dusting at 4- or 5-day intervals until it drops below that figure. The number of applications to be made for the earlier weevils will vary with the season, being more in seasons favorable to weevils and with a heavy spring carry-over than

in seasons of hot, dry weather. Rainy weather with mild summer temperatures is favorable to weevils. Usually from two to four dustings will be necessary to control the early weevils. Good control at this time is important; hence the dust should be applied carefully and thoroughly. Usually four or five later applications of dust will be necessary to check the weevils after the mid-summer migration commences. These late applications of calcium arsenate dust will usually be needed between July 20 and September 1.

The second treatment, or spraying, has not been tested as yet on a field scale upon Sea Island cotton in southern Georgia. In the experimental plots it gave fair satisfaction, although it was not so satisfactory as dusting, and was no cheaper. However, where spraying equipment is available and no dusting equipment is owned, a spray may be substituted for the dust with some probability of success. The spray may be put on with any good tobacco sprayer or similar spray machine, applying a mixture of 5 pounds of calcium arsenate, 1 gallon of good cane syrup, and 49 gallons of water, at the rate of from 25 to 50 gallons per acre, according to the growth of the cotton. If it is possible to use the dust, a spray is not recommended.

In applying the treatments advised above it must be remembered that complete satisfaction can be in no wise assured. Work upon boll weevil control on Sea Island cotton is still relatively new, and these treatments are merely recommended as the best available at this time. Last season at Lake Park, Georgia, the dusting treatment as recommended gave approximately two-fold increases in yield on a field scale (20 acres), the actual yields on treated cotton being 441 pounds of seed cotton per acre and on the untreated cotton ($12\frac{1}{2}$ acres) 217 pounds. At all points where work was done that permitted comparison between the yields from treated and untreated cotton, good increases in yield above that from untreated cotton and cotton given other types of treatment were shown in every case from the dusting treatments applied as recommended.

In addition to the soil, the water, being present with the soil, is also important in the study of soil. The water in the soil is not only a medium for the growth of plants, but it is also a medium for the growth of micro-organisms. The water in the soil is also a medium for the growth of plants, but it is also a medium for the growth of micro-organisms. The water in the soil is also a medium for the growth of plants, but it is also a medium for the growth of micro-organisms.

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